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Plated Metallisation for Photovoltaic Devices

Copper plated electrical contacts to solar cells can provide the advantages of high conductivity and low cost, however copper plating processes can present challenges in terms of equipment availability, process control, durability and waste management.

Competitive advantage

- Extensive experience in copper plating processes including light-induced plating and forward-bias plating of industrial silicon solar cells
- World-class facilities for adhesion testing of solar cells and durability testing of modules

Impact

- Demonstrated copper plated p-type PERC cells with strong finger adhesion
- Several patented patterning methods for contact region definition

Successful applications

- Nickel/copper/silver plating of ps-laser ablated p-type PERC solar cells
- Nickel/copper/silver plating of n-type PERT solar cells
- Copper plated bifacial silicon heterojunction cells

Capabilities and facilities

- Nickel/copper/silver plating processes and equipment for p-type and n-type Si solar cells
- Contact formation using 266 nm ps laser ablation
- Light-induced and forward-biased plating processes for silicon solar cells
- Immersion plating processes for seed and capping layers
- Sputtered amorphous seed layers for plated contacts
- Grid designs for copper plated solar cells
- Finger and busbar adhesion measurements
- Patterning and copper plating processes and equipment for silicon heterojunction cells
- Copper plating and equipment for GaAs solar cells
- Environmental testing of copper-plated Si photovoltaic modules
- Analysis and detection of copper diffusion in silicon
- Cross-sectional analysis of modules using plasma FIB to determine physics of failure mechanisms arising from environmental testing of modules

Our partners

- Suntech Power
- Trina Solar

More Information

Associate Professor Alison Lennon

School of Photovoltaic and Renewable
Energy Engineering

T: +61 (0) 2 9385 7942

E: a.lennon@unsw.edu.au

UNSW Knowledge Exchange

knowledge.exchange@unsw.edu.au

www.capabilities.unsw.edu.au

+61 (2) 9385 5008

